Who Counts?

How Malapportionment Can Favor Urban Interests and Left Parties*

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Existing research argues that malapportionment primarily favors rural areas, resulting in conservative biases of electoral systems. In this paper, we provide a radically different perspective on the study of reapportionment processes by identifying the institutional design under which malapportionment favors urban interests and left parties. Because of the geographical sorting of foreign-born residents, we argue that urban and left-leaning regions benefit from population-based reapportionment, whereas rural and conservative regions benefit from citizen-based reapportionment. Empirically, we use subnational data from eleven advanced democracies to forward evidence that differences in reapportionment mechanisms and district-level shares of non-citizen residents systematically influence political representation. Moreover, using municipality-level data of a popular vote from Switzerland, we demonstrate that voters' ideological leanings are strong predictors of support for population-based rather than citizen-based reapportionment. Our findings suggest that the impact of malapportionment on political representation and public policies might be more heterogeneous than previously thought.

*An earlier versions of this paper was presented at the 2022 workshop "Democracy and Electoral Authoritarianism in Europe" at University of Zurich, the 2022 workshop "Comparative Legislative Studies" at the University of Bremen, the 2022 workshop of the Research Network in Political Economy at the Max Planck Institute for the Study of Societies in Cologne, and the 2023 Virtual Workshop in Historical Political Economy. We thank all participants for their feedback as well as Thomas Ehrhard and Hugo Marcos-Marne for their help with the data collection. All remaining errors are the authors' responsibility.

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A switch to the use of citizen voting age population as the redistricting population base for redistricting would be advantageous to Republicans and Non-Hispanic Whites.

Thomas B. Hofeller, Republican political strategist

Introduction

In 2020, former U.S. President Donald Trump declared in a memorandum that his administration wants to exclude undocumented immigrants from the numbers that Congress would use in apportionment. As a result, states with larger populations of undocumented immigrants would have lost seats in the House of Representatives. Even though President Biden repealed Trump's executive order, several Republican lawmakers continue to demand that non-citizens should not be considered in the apportionment process of state legislatures (Frost, 2021). The US is not the only case, where the role of non-citizens in apportionment is the subject of controversy. For instance, in 2022, the right-wing populist Swiss People's Party demanded to exclude non-citizens when reapportioning seats for parliament (Keystone-SDA, 2022).

From a normative perspective, all answers to the question of who should count in reapportionment processes are controversial (Mansbridge, 2003). For instance, unlike Donald Trump, Carens (1987) makes a strong case for the political consideration of non-citizen residents. Blatter and Schulz (2022) even argue that in the age of transnational interdependence, countries should grant their citizens the right to elect representatives not only in their domestic parliament but also in the parliaments of neighboring countries. The extent to which electoral districts are "malapportioned" is thus in the eye of the beholder. This paper cannot hope to resolve these intricate normative questions. Instead, the paper's main contribution is to show that the existing empirical literature has overlooked a key variable influencing the apportionment process – with important implications for the representation of political parties.

Malapportionment denotes systematic biases in democratic systems because some geographical regions benefit from numerically better political representation than others (e.g., Albertus & Menaldo, 2017; Ardanaz & Scartascini, 2013; Kamahara et al., 2021). As a result, in malapportioned systems, "the votes of some citizens weigh more than the votes of other citizens" (Samuels & Snyder, 2001, 654). Such malapportionment has important consequences. Research has repeatedly identified malapportionment as a key reason for poor economic outcomes, low progressive taxation, high inequality, and severe fiscal imbalances (e.g., Ansolabehere et al., 2002; Ardanaz & Scartascini, 2013; Beramendi et al., 2022; Bhavnani, 2018, 2021; Hiroi, 2019; Horiuchi, 2004; Horiuchi & Saito, 2003; Maaser & Stratmann, 2016; Rodden, 2002). The reapportionment process is thus an important example of how electoral systems influence partisan politics and competition over redistribution (e.g., Becher, 2016; Döring & Manow, 2017; Iversen & Soskice, 2006; Persson & Tabellini, 2003).

The existing empirical literature argues that malapportionment typically favors rural regions and thus conservative parties (e.g., Albertus & Menaldo, 2017; Altman & McDonald,

2013; Ansolabehere & Snyder, 2008; Bhavnani, 2018; Boone & Wahman, 2015; Bruhn et al., 2010; Cox & Katz, 2002; Johnson & Miller, 2022; Moriwaka, 2008; Samuels & Snyder, 2001; Snyder & Samuels, 2004; Ziblatt, 2009). This conservative bias has two sources. First, constitutional rules sometimes guarantee geographical regions a certain number of parliamentary seats. For instance, constitutions might stipulate that all regions receive a minimum number of seats, independent of the number of voters residing in these regions. Second, representational biases may result from the non-adaptation of districts in spite of unequal population growth. In both cases, districts suffering from depopulation are more likely to benefit from better representation. As a result, the empirical literature argues that malapportionment typically benefits rural regions – and because rural regions are on average more conservative – conservative parties.

In contrast, we argue that the representational consequences of the reapportionment process are more diverse. Depending on the specific rules of electoral district design, reapportionment might benefit rural or urban regions, conservative or left parties. More precisely, we argue that another factor influencing the reapportionment process is whether the allocation of parliamentary seats to geographical regions is based on the regions' *total population* or number of *citizens or voters*. This difference would not matter if non-citizen residents, primarily immigrants, were equally distributed across the territory. However, this is unlikely to be the case. Non-citizens tend to concentrate in urban areas (OECD, 2016), and urban areas tend to be politically more left-leaning (Kenny & Luca, 2021; Rodden, 2019). As a result, population-based reapportionment and the geographical concentration of non-citizens in urban areas favors left parties.[1]

This paper contributes to the growing literature on how electoral systems mediate the translation of voter preferences, thereby influencing legislative representation and policies in favor of certain regions *and* ideological groups. First, we show that the allocation of seats to geographical regions varies between countries with a narrow majority reapportioning parliamentary seats based on the total population instead of other reference groups such as citizens or voters. Using a novel, sub-national data set covering eleven advanced democracies, we demonstrate that the share of non-citizen residents at district level systematically influences political representation when a country relies on population-based apportionment rather than citizen-based apportionment. Second, we show that in countries with population-based reapportionment, reapportionment favors left parties, whereas the opposite is true for countries relying on citizen-based reapportionment. The main reason is that in most advanced democracies, left parties tend to find a disproportionate amount of electoral support among urban voters. Finally, we provide evidence that parties and voters are aware of the distributional consequences of this institutional feature. Taking advantage of a direct democratic vote in Switzerland, we show that partisan ideology, not preferences for regional representation, drives voters' positions on the difference between population and citizen-based reapportionment.

Our paper is structured as follows. We start by outlining the different variables influencing

[1]The main exception to this pattern is the role of non-citizen residents in labor-dependent agriculture. Most notably, in the USA, in elections for Southern legislatures, higher slave-share districts benefited from better representation because of population-based apportionment (Chacón & Jensen, 2020). Similarly, the so-called three-fifths compromise defined how slaves were to be counted for the purpose of apportioning seats for the U.S. House of Representatives. In both cases, rural and more conservative areas were the main beneficiaries of population-based apportionment.

reapportionment and how they influence the representation of regional and ideological interests. Subsequently, we present our data and discuss the results of our empirical analysis. A final section concludes.

Factors Influencing Reapportionment

In an unbiased electoral system with districts, every vote has the same impact on the composition of the legislature, meaning that the share of voters should be equal to the share of representatives elected in a district. To achieve this goal, district boundaries or magnitudes are adjusted, and new districts are created in regular intervals to account for voter movements and population growth. Given that this process has to consider multiple, sometimes conflicting goals such as maintaining traditional communities while creating equally sized districts, smaller deviations from such perfectly apportioned systems are common, perhaps unavoidable. However, sometimes, these deviations are large and lead to an unfair distribution of representatives in the legislative body.

The empirical literature typically highlights two factors influencing the reapportionment process. First, constitutions or electoral laws might contain rules that guarantee geographical regions a certain number of seats in the legislature. For instance, in case of upper chambers, all geographical units (e.g., departments, states, districts) might receive the same number of seats. An example is the US Senate, which consists of 100 members, two for each of the fifty US states. In case of lower chambers, constitutions often contain quotas to guarantee that some or all geographical units receive a minimum number of seats. For instance, Australia, Canada, Norway, and Switzerland have adopted these quotas in the course of their history, but similar rules also exist around the world in countries such as Turkey, Uruguay, and Ecuador (Nohlen, 2005; Nohlen et al., 2004; Nohlen & Stöver, 2010). While these quotas are typically designed to allow for minority representation, they primarily benefit sparsely populated regions. Due to global trends towards urbanization (Baeumler et al., 2021; United Nations, 2019), their distributional consequences are thus skewed in favor of rural and conservative interests (e.g., Johnson & Miller, 2022).

Second, differences in representation may result from *not* reapportioning electoral districts despite significant voter movements and unequal population growth. A widely known example is Imperial Germany in which no redistricting took place between 1871 and 1912 (Boix, 2010, 406). In 1912, the eleven largest single-member districts in Imperial Germany had between 100.000 and 340.000 inhabitants, whereas there were more than one hundred single-member districts with less than 25.000 inhabitants (Rauh, 1977, 408). The United States before the Supreme Court's reapportionment decisions in the 1960s is another prominent example of non-reapportionment despite large population movements (Ansolabehere & Snyder, 2008; Cox & Katz, 2002) as is the decade-long freezing of the seat distribution in India since 1976 (Bhavnani, 2018). In the case of non-reapportionment, regions with population outflows and low population growth gain most from freezing the existing district boundaries. Once again, rural and conservative interests are the likely beneficiaries from blocking the reapportionment process because of rural depopulation.

This paper argues that there is a third, often overlooked factor influencing reapportionment.

Table 1: Reference Groups in Apportionment Process

	Population-based apportionment (incl. voting-age population)	Voters- or citizens-based apportionment (incl. registered voters)
Number of countries	32	27
Share of countries	56%	46%

Source: Handley and Grofman (2008, appendix C)

This third factor, however, has the potential to benefit urban regions and left parties. In a perfectly apportioned system, Samuels and Snyder (2001, 654, emphasis added) explain, "no *citizen's vote* weighs more than another's". However, *voters* are not always the only ones that count. In their overview of reference groups used for reapportionment, Handley and Grofman (2008, appendix C) show that 54% of all countries use the *total population* to apportion seats, whereas the remaining 46% use the number of *citizens* or (registered) *voters* (see Table 1). The difference between citizens and voters is primarily concerned with age, as young citizens might not be entitled to vote yet. However, in advanced democracies, citizens and voters are almost perfectly correlated because the age structure rarely varies significantly by region (Kashnitsky et al., 2021).[2]

In contrast, the main difference between citizens and the total population in a given geographical region are non-citizen residents, which in turn primarily consist of foreign-born residents. The difference between total population and citizens would not matter much if non-citizen residents were distributed equally across the territory. In this case, the question of "who counts" in the process of seat reapportionment would not have any significant consequences. However, this is clearly *not* the case. In all OECD countries, foreign-born residents are on average more likely to live in urban areas (OECD, 2016, 106; Alessandrini et al., 2018). Figure 1 shows, based on OECD data, the difference between the shares of foreign-born and native-born residents in a given country living in densely populated and intermediate density areas (i.e. "urban areas"). In all countries, this difference is positive, indicating that foreign-born residents are more likely to live in urban areas than native-born residents. For some countries, these differences are substantial (e.g., Austria and France), whereas in other countries these differences are comparatively small (e.g., Italy and Spain). Clearly, there is no *necessity* for foreign-born residents to concentrate in urban areas, just like there is no necessity for countries to suffer from rural depopulation. However, in most countries they do, including in all countries included in Figure 1.

The non-random allocation of non-citizens across a country's territory has implications for political representation if seats are apportioned to electoral districts as a function of the total population rather than citizens. Consider the case of Switzerland, a country that relies on a proportional representation (PR) electoral system with multi-member districts, uses the total population to apportion seats to electoral districts, and hosts a large non-citizen population (25,7% of the entire population). In 2021, the share of non-citizens varied between 11,5% in the electoral district "Appenzell Innerrhoden" and 40,5% in the

[2]Fertility rates are higher among non-citizens (Kulu, 2005). Fertility rates matter for the difference between voters and the population because, on average, non-citizen residents are younger (and thus not of voting age). However, in this way, differences in fertility rates even *increase* the potential role of non-citizen residents in the apportionment process. In contrast, the difference between citizens and the entire population (i.e., citizens and non-citizens) takes differences in fertility rates already into account.

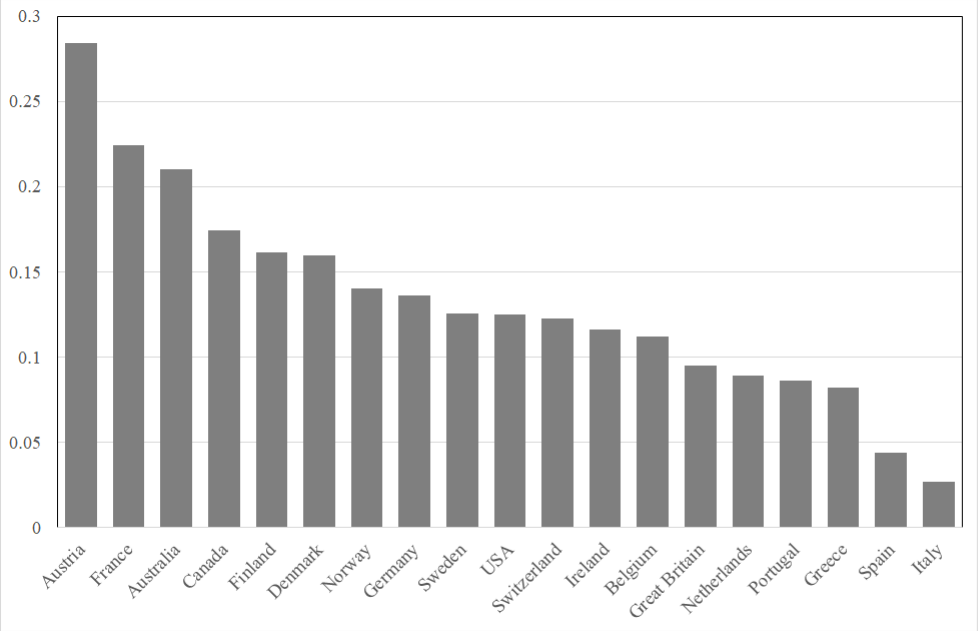


Figure 1: Differences between shares of foreign-born and native-born residents living in densely populated or intermediate density areas, by country, in 2013

Note: The figure shows the percentage differences between foreign-born and native-born residents living in densely populated or intermediate density areas, as defined by Eurostat. According to the OECD, this number is a good approximation to the urban population. The rest of the population corresponds to the rural population. Source: OECD (2016, 107).

electoral district "Genève".[3] As a result, citizens residing in "Genève" benefit from the fact that the comparatively large number of non-citizens increases district magnitude, which in turn increases the weight of their vote relative to other Swiss voters (who live in electoral districts with smaller shares of non-citizen residents, such as "Appenzell Innerrhoden"). In the district "Genève", there is one legislator in the lower chamber per 25.251 citizens in the district, whereas for the average Swiss, the corresponding number is 32.469 citizens per legislator.

We argue that the difference in reference groups – citizens or population – matters both substantially and systemically. In a perfectly apportioned system, "no citizen's vote weighs more than another's" (Samuels & Snyder, 2001, 654). Against *this* benchmark (equal weight of citizens' votes), population-based apportionment, instead of citizen-based apportionment, increases malapportionment. This matters substantively because differences in the shares of non-citizen residents between districts can be large, as the Swiss example shows. Voters of "Genève" enjoy a representational bonus of more than 20%. However, this also matters systematically because non-citizen residents tend to be concentrated in urban regions (see Figure 1), and urban areas, in turn, are politically more left-leaning than rural areas (Kenny & Luca, 2021; Rodden, 2019). As a result, voters residing in highly urbanized and left-leaning regions should be the main beneficiaries of population-based reapportionment. For this reason, the subsequent empirical analysis also explores the effect of differences in reference groups on the representation of political parties.

[3]Source: https://de.statista.com/statistik/daten/studie/293759/umfrage/auslaenderanteil-in-der-schweiz-nach-kantonen/ (accessed on November 3, 2022).

Why did the literature overlook this third factor influencing reapportionment? Following the "one person, one vote" logic, scholars typically *define* malapportionment with reference to voters or citizens (e.g., Bhavnani, 2018; Boone & Wahman, 2015; Kamahara et al., 2021). Yet, in their *measurement*, most existing studies resort to the total population, presumably for reasons of data availability (e.g., Ardanaz & Scartascini, 2013; Beramendi et al., 2022; Bruhn et al., 2010; Hiroi, 2019; Horiuchi, 2004; Horiuchi & Saito, 2003). The agenda-setting paper by Samuels and Snyder (2001) is a typical example. They define malapportionment with reference to citizens' votes (654) but measure it using the total population (655).[4] Samuels and Snyder (2001, 655) justify this measurement strategy by writing that they "use population per district whenever available [because] most countries apportion seats on the basis of population rather than registered voters." However, as Table 1 shows, this measurement strategy is problematic because roughly half of the countries use the number citizens or (registered) voters to apportion seats. Even though their discussion suggests that Samuels and Snyder (2001) are aware of the difference in "who counts", they clearly underestimate the extent to which the share of non-citizen residents varies between districts within a country. Consequently, the literature has been blind to this third factor influencing reapportionment, which, we argue, has the potential to benefit urban region and left parties.

Neglecting this difference in reference groups is problematic for both empirical and normative reasons. From a normative point of view, the term malapportionment implies a biased representation, which, however, can be contested. For instance, Carens (1987) argues that non-citizen residents should be politically represented, although political preferences of non-citizens and citizens residing in districts with large shares of non-citizens do not necessarily converge. In this paper, we do not aim to make a normative argument about the desirability of population-based or citizen-based apportionment. Rather, our aim is to demonstrate that differences in reference groups matter both substantially and systemically. In this way, we contribute to the literature that views the design of electoral institutions as the result of political conflict. Indeed, the available evidence suggests that there are considerable partisan differences regarding how and when seats should be allocated to geographical units (e.g., Bhavnani, 2018; Cox & Katz, 2002; Walter & Emmenegger, 2022). In addition, scholars have started to investigate the distributional consequences of excluding certain groups of the population from the apportionment formula (e.g., Baumle & Poston, 2004; Chen & Stephanopoulos, 2021; Haas et al., 2022). However, existing work mainly focuses on the representation of minorities and is limited to the USA. To broaden our understanding of these processes, we present evidence on reapportionment processes from a cross-national perspective in the following.

Data and Methods

Do differences in reference groups for reapportionment influence representation? Do these rules advantage some political parties over others? Are these representational biases in-

[4] However, they are not consistent in their definition of malapportionment. In another section of their manuscript, Samuels and Snyder (2001, 652) define malapportionment as "the discrepancy between the shares of legislative seats and the shares of population held by geographical units." In this definition, the reference group is the total population.

tended or an accidental by-product of institutional design? In the following, we proceed in three steps to answer these questions. First, we present our cross-country data on the development of reapportionment under different institutional designs. We employ this data to show that the share of non-citizen residents at district level systematically influences political representation when a country relies on population-based apportionment rather than citizen-based apportionment. Second, we present evidence to show that population-based reapportionment favors left parties, whereas citizen-based reapportionment favors conservative parties. To provide evidence that this pattern is not an unintended consequence but the result of political design, we, third, use municipality-level data from a direct democratic vote in Switzerland to demonstrate that the ideological leaning of voters is substantially associated with support for different reapportionment rules.

In the first step of our analysis, we focus on the link between non-citizen residents without the right to vote in national elections, the seat allocation mechanism, and reapportionment in a cross-country setting. Previous research has struggled with considerable data limitations, relying mainly on cross-sectional country data without being able to exploit temporal variation and geographically locating which regions enjoy representational advantages (Ardanaz & Scartascini, 2013; Samuels & Snyder, 2001). Other studies have exploited sub-national variation in single countries. However, these analyses omit important institutional determinants influencing reapportionment (Ansolabehere et al., 2002; Bhavnani, 2018; Hiroi, 2019; Horiuchi & Saito, 2003).

We overcome these limitations by employing a large data set of eleven Western countries, which covers elections in larger parts of the 20th century and the early 21st century. Table 2 provides more details on the structure of the data and our sources. Importantly, we focus on administrative structures (henceforth "districts") to which seats are distributed as unit of analysis. In countries with PR electoral systems, these units are the same as electoral districts. In countries with majoritarian (MR) electoral systems, however, we focus on levels such as the states in the USA even though electoral districts are drawn on a lower level. In doing so, we avoid conflating representational biases caused by reapportionment with biases caused by gerrymandering since we are analytically interested only in the former. In the USA, for instance, the rule for reapportionment are enshrined in the constitution, while the process of redrawing electoral districts is in the hand of states. In addition, we provide robustness tests to demonstrate that our results are not sensitive to the inclusion of countries with MR electoral systems.

To measure differences in reapportionment, we employ the log-transformed "relative representation index" (RRI) as a district-level measure (Ansolabehere et al., 2002). The RRI is the ratio of voters and district magnitude between district and national level and is computed as follows:

$$RRI = \log\left(\frac{\frac{\text{District magnitude}}{\text{Number of voters in district}}}{\frac{\text{Assembly size}}{\text{Number of voters in country}}}\right)$$

Values above zero indicate that districts have higher seat shares in parliament than shares in the electorate, whereas values below zero indicate that districts have lower seat shares in parliament than shares in the electorate.

Several factors influence the reapportionment process. Our main variables of interest are

Table 2: Data Set and Sources

Country	Period	Seat Allocation	Units	Sources
Austria	1970-2019	Citizens	Bundesländer	Statistik Austria https://pic.statistik.at/web_de/statistiken/index.html Federal Ministry of the Interior https://www.bmi.gv.at/412/Nationalratswahlen/Historischer_Rueckblick.aspx
Belgium	1971-2019	Population	Provinces	Belgische verkiezingsuitslagen http://www.ibzdgip.fgov.be/result/nl/main.html Statbel https://statbel.fgov.be/en
Canada	1997-2019	Total Population	Provinces	Elections Canada https://www.elections.ca/
Finland	1991-2019	Citizens	Vaalipiiri	Statistics Finland https://stat.fi/index_en.html
France	1986-2017	Population	Departments	Insee https://www.insee.fr/en/accueil Ministère de l'intérieur https://www.interieur.gouv.fr/
Germany	1973-2021	Citizens	Bundesländer	Federal Returning Officer https://www.bundeswahlleiter.de/en/bundeswahlleiter.html Federal Statistical Office of Germany https://www.destatis.de/EN/Home/_node.html
Norway	1972-2013	Population	Counties	Fiva and Smith (2017) Statistics Norway https://stat.fi/index_en.html
Spain	1977-2019	Population	Provinces	Ministry of the Interior http://www.infoelectoral.mir.es/min/home.html
Sweden	1973-2018	Voters	Constituency	Statistics Sweden https://www.scb.se/en/
Switzerland	1971-2019	Population	Cantons	Historical Statistics of Switzerland https://hsso.ch/en Federal Statistical Office https://www.bfs.admin.ch/bfs/en/home.html
USA	1980-2020	Population	States	McDonald (2021) Census Bureau https://www.census.gov/en.html/

the share of non-citizen residents and the reapportionment mechanism. To capture the share of non-citizen residents, we subtract the number of eligible voters from the population and divide the result by the population.[5] For the reapportionment mechanism, we employ a dummy variable that measures whether seats are distributed according to the number of citizens or voters ("Reference Citizens" = 1) or, alternatively, total population ("Reference Citizens" = 0). The data comes from Handley and Grofman (2008, appendix C) and was double-checked using country-specific sources such as constitutions and electoral laws.[6]

To account for other factors influencing the reapportionment process, we use three controls. First, some regions might have a constitutional right to a minimum number of seats. For instance, all districts in Spain have at least two seats by law, while the Canadian provinces are guaranteed to have at least as many seats as they had in 1985. To capture these cases, we use a dummy variable for each district that falls under the minimum representation threshold. Second, districts might be regularly adapted to accommodate regional differences in population growth. To capture such reapportionment, we employ a dummy variable for cases in which district magnitude was adjusted. Third, we expect smaller electoral districts, regardless of minimum representation thresholds, to be politically over-represented to compensate for their small size. Therefore, we add a variable for the size of the population to our specifications.

Given that we have a panel data set with a longer temporal dimension, i.e. elections covering multiple decades, we employ a fixed effects model to account for unobserved heterogeneity by year as well as by country and districts, respectively. In addition, the relative representation index (RRI) is strongly autocorrelated over time. We add a one election lag of RRI to all our specifications and cluster the standard errors by districts because the observations within districts are interdependent. Lastly, the number of districts and elections in our data differ considerably between countries. For instance, we have 146 observations for Belgium but 728 observations for Spain. To avoid that our results are driven by countries with many observations, we add inverse probability weights to our model specifications so that every country has the same impact on the estimates.

Second, we present evidence on the link between voter ideology and the relative representation of districts. To capture ideology, we use the left-right scale ("rile") from the Comparative Manifestos Project (CMP, see Lehmann et al., 2022) and the ideological stance on economic issues from the Chapel Hill Expert Survey (CHES, see Jolly et al., 2022). To compute the rile scores, we take the average for each party over the period 1970-2022 to reduce the impact of temporary position changes. The CHES data covers EU countries across multiple waves (1999-2019) and non-EU countries such as Norway and Switzerland only in the last wave (2019). Thus, we use the average expert scores of all waves for all EU-countries and the last wave for the non-EU countries. We then match

[5] We use this measure instead of the share of immigrants or non-citizens because data on the latter is either not available on the relevant administrative level or only for shorter time periods. In addition, countries often use categories such as non-citizens, immigrants, over-seas born 8to name but a few) that are not directly comparable.

[6] There are some disagreements. For instance, Handley and Grofman (2008, appendix C) coded the reapportionment mechanism in Belgium as citizen-based. However, the current constitution (article 63.2) as well as the electoral law from 1993 define the population as the relevant group for reapportionment. Similarly, Finland is classified as population-based. Here, the constitution from 1999 (section 25) states that reapportionment is based on the number of citizens residing in each electoral district. We rely on primary sources for our coding decisions in case of disagreement.

the ideology variables, weighted by party vote shares, with the RRI data from Table 2 at the level of each district.

The first two steps of our analysis aim to demonstrate that differences in reference groups matter systemically for political representation. But to what extent are differences between reference groups the subject of political conflict? The 2015 Hofeller report and Trump's 2020 memorandum (Frost, 2021), mentioned at the beginning of this article, suggest that political strategists are well aware of the distributional consequences of changes in reference groups. For good reason, Sartori (1968, 273) called electoral institutions "the most specific manipulative instrument of politics."

For political strategists, changing to a more favorable definition of reference groups for reapportionment has few, if any downsides. Yet, unlike political strategists, *voters* have conflicting incentives, because reapportionment concerns both ideological *and* regional representation. For instance, a change in the reference group might strengthen the representation of one's preferred party. At the same time, however, this change might weaken the representation of one's own region. How do voters adjudicate between these potentially conflicting interests? The final part of our analysis shifts the focus to public preferences for different reapportionment mechanisms to demonstrate that even at the level of voters, support is driven by ideological leanings.

Data on voter preferences for the design of electoral institutions is scarce and normally limited to preferences for different electoral systems (e.g., Blais et al., 2015). In the absence of such data, we follow the recent literature and use direct democratic votes on political institutions to measure revealed preferences on a fine-grained level (e.g., Colantone & Stanig, 2018; Gehring, 2021; Leemann et al., 2022; Riambau et al., 2021). In particular, we utilize the unique opportunity of a popular vote in Switzerland in 1903 where voters were asked if they wanted to abolish population-based apportionment in favor of citizen-based reapportionment. A short description of the historical context of the vote can be found in the appendix. The description shows that in the run-up to the popular vote, parties emphasized how the non-citizen population and differences in reference groups for apportionment influence the representation of urban and rural areas, respectively.[7]

We match the vote outcome at the municipality level, measured in terms of yes shares, with data on party support and ideology scores. Our measure of party support captures the vote share of all Swiss parties that draw significant support from urban areas and comes from official electoral reports. This includes the Liberals, the Radicals, the Democrats, and the Social Democrats. In contrast, parties drawing most support from rural areas are the Catholic Conservatives and the Protestant Conservatives (Gruner, 1978).

However, Swiss voters elected their members of parliament under a MR electoral system in the early 20th century. Thus, party vote shares might reflect the ideological leaning of

[7]Swiss voters ultimately rejected the change of apportionment rules. However, there are also examples of successful reforms. For instance, a 1885 reform in France aimed to strengthen the political representation of rural areas. Balinski (2008, 174-175) summarizes the relevant changes: "First, numbers of French inhabitants were substituted for numbers of all inhabitants as the basis for the representation of departments. This was to reduce the weight of the industrial centers, and so reduce the strength of the Left. Second, every department was assured at least three deputies, reinforcing the weight of the small rural areas, again diluting the voting strength of the Left."

municipalities only imperfectly due to strategic voting and candidate entry (Cox, 1997). Thus, we use the liberal-conservative ideology indicator from Leemann et al. (2022) as an alternative measure. The measure is based on item response theory (IRT) scores derived from popular votes between 1866 and 1913 and locates all municipalities on a liberalism-conservatism scale (the main political cleavage at the time). Importantly, the popular votes used to generate the ideology measure do not include the vote we analyze in our paper. Given that voters were asked straight yes/no questions in all popular votes, we assume that the IRT scores provide a more precise picture of the true ideological leaning of a municipality. We expect conservative voters to favor citizen-based reapportionment.

In addition, we include a variable for the relative change of representation at the district level because the initiative, if successful, would have affected the magnitude of several electoral districts (Bundesrat, 1902). To do so, we compute the difference between the ratio of district magnitude and assembly size under the existing population-based and the proposed citizen-based reapportionment mechanism. Finally, we add a number of socio-economic indicators with data from the 1900 national census, namely the share of agricultural employment, the share of non-citizen residents, population density, the share of Catholics, the share of German-Speakers, and a row-standardized spatial lag with inverse distance weights. To estimate the effects of these variables on yes shares, we employ linear multilevel models with random intercepts at canton level.

Results

In Table 3, we estimate the effect of the share of non-citizen residents, conditional on the reapportionment mechanism, on the relative representation index, which we use as our indicator of malapportionment. All models include a lagged dependent variable, country, district, and year fixed effects. Models 1 and 2 display our preferred specification with country weights. The interaction term is significant at the 5% level and shows the expected sign in both models. More precisely, the coefficient of the interaction term suggests that the positive effect of the share of non-citizen residents on the relative representation index decreases in countries using citizen-based reapportionment. We provide a more detailed interpretation of the substantive effects below.

We have included a number of robustness tests in Table 3. None of the tests affect our main results. In models 3 and 4, we provide the estimates without using inverse probability weights. In addition, we have restricted our sample to countries with PR systems in models 5 and 6. In models 7 and 8, we exclude districts with a district magnitude equal to the country-specific minimum representation threshold. Lastly, we demonstrate that the link between non-citizens and the relative representation index is not moderated by the electoral system (see models 9 and 10).

To provide a substantial interpretation of the interaction term, we present a marginal effects plot in Figure 2 using the estimates of model 2. It shows that the effect of the share of non-citizen residents on the relative representation index under different seat allocation mechanisms. If the mechanism is based on the population, a 10 percentage point increase in the non-citizen population is linked to an about 2.5% increase in the relative representation index. In contrast, the point estimate for the share of non-citizen residents is negative

	With Weights		Without Weights		PR Only		Without Minimum Repres.		Electoral Systems	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Lag Malapportionment	0.53***	0.67***	0.59***	0.75***	0.48***	0.60***	0.47***	0.66***	0.53***	0.67***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)	(0.06)	(0.04)	(0.04)	(0.03)	(0.04)
Share Non-Citizens	0.37***	0.22**	0.28***	0.13*	0.49***	0.27**	0.33***	0.20**	0.35***	0.23**
	(0.08)	(0.07)	(0.07)	(0.05)	(0.11)	(0.10)	(0.08)	(0.07)	(0.09)	(0.09)
Reference Citizens	−0.08**	−0.05	−0.06*	0.02	−0.20***	0.09	−0.00	0.01	−0.20***	0.03
	(0.03)	(0.07)	(0.03)	(0.05)	(0.04)	(0.05)	(0.02)	(0.03)	(0.03)	(0.04)
Share Non-Citizens * Ref. Citizens	−0.21*	−0.32***	−0.25**	−0.34***	−0.28*	−0.37***	−0.14†	−0.29***	−0.20*	−0.33***
	(0.09)	(0.07)	(0.09)	(0.08)	(0.11)	(0.09)	(0.08)	(0.07)	(0.10)	(0.08)
Minimum Representation Threshold		−0.12†		−0.06		−0.29***				−0.12†
		(0.07)		(0.05)		(0.09)				(0.07)
Reapportionment		0.08***		0.10***		0.07***		0.08***		0.08***
		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)
ln Number of Voters		−0.06**		−0.04*		−0.11***		−0.05*		−0.06**
		(0.02)		(0.02)		(0.03)		(0.02)		(0.02)
Majoritarian System									−0.13***	0.09
									(0.04)	(0.09)
Share Non-Citizens * Majoritarian System									0.09	−0.07
									(0.15)	(0.15)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.93	0.96	0.93	0.96	0.90	0.95	0.87	0.93	0.93	0.96
Adj. R^2	0.93	0.96	0.92	0.96	0.89	0.94	0.86	0.92	0.93	0.96
Num. obs.	3882	3882	3882	3882	2145	2145	3515	3515	3882	3882

Cluster-Robust Standard Errors by District. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{dagger}p < 0.1$

Table 3: Non-Citizens & Malapportionment

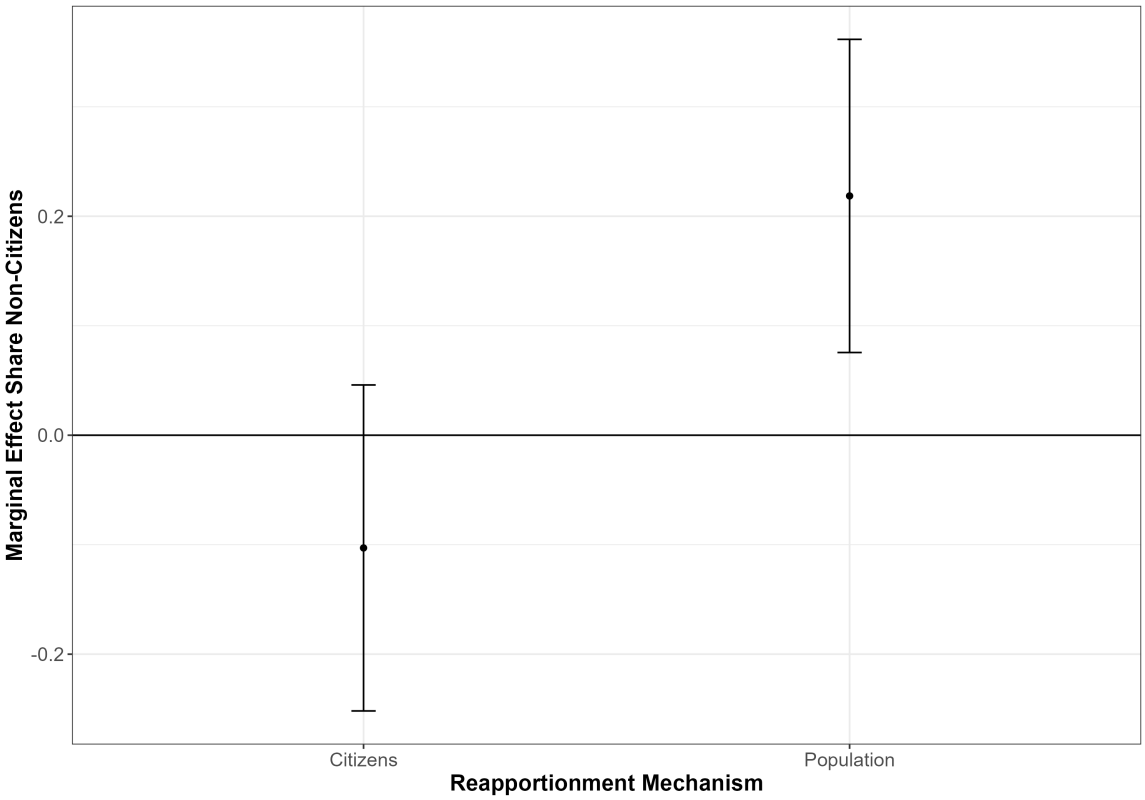


Figure 2: Marginal Effect of Non-Citizens on Malapportionment

and not significant at the 5% level in countries that use citizen-based reapportionment. In short, Figure 2 shows that the share of non-citizens increases malapportionment (here measured with reference to citizens rather than the total population) if population-based apportionment is used but does not increase malapportionment in case of citizens-based apportionment. Put differently, the reference group matters.

The results in Table 3 and Figure 2 show that regions with a larger share of non-citizen residents are systematically linked to higher scores on the relative representation index if countries rely on population-based reapportionment. However, are districts enjoying such representational advantages also more left-leaning? In Table 4, we provide estimations for the relationship between voter ideology and relative representation at the subnational level. The dependent variables are the vote share weighted ideology scores from CMP and CHES, respectively. The complete specifications can be found in Table 4. Our main interest is the interaction term of the relative representation index and the reapportionment mechanism. For both dependent variables, we find that the interaction term is significant at the 5% level.[8]

The plots in Figure 3, based on models 2 and 4 in Table 4, show the marginal effect of the relative representation index on support for political parties, depending on the reapportionment mechanism. The picture is the same for CMP and CHES and differs only with regard to the precision of the estimates. Both plots show that the relative representation index is linked to more support for conservative parties if seats are allocated based

[8]Please note that Table 4 and Figure 3 do not yet include data on Spain and Belgium. We are in the process of adding the data for the remaining countries.

	Manifesto		CHES	
	Model 1	Model 2	Model 3	Model 4
Malapportionment	−2.83*	−3.55*	−0.78***	−1.05***
	(1.17)	(1.47)	(0.24)	(0.27)
Reference Citizens	−36.90*	17.23	2.25***	1.99***
	(15.71)	(16.07)	(0.62)	(0.60)
Malapportionment * Ref. Citizens	6.06*	6.78*	1.25***	1.51***
	(2.87)	(2.99)	(0.34)	(0.37)
Minimum Representation Threshold		1.80		0.67†
		(1.59)		(0.37)
Majoritarian System		52.44***		0.72
		(6.60)		(0.92)
Vote Share w/o Ideology	4.42	4.32	−0.62	−0.63
	(15.37)	(15.37)	(0.48)	(0.49)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R^2	0.79	0.79	0.53	0.56
Adj. R^2	0.78	0.79	0.51	0.55
Num. obs.	2085	2085	1527	1527

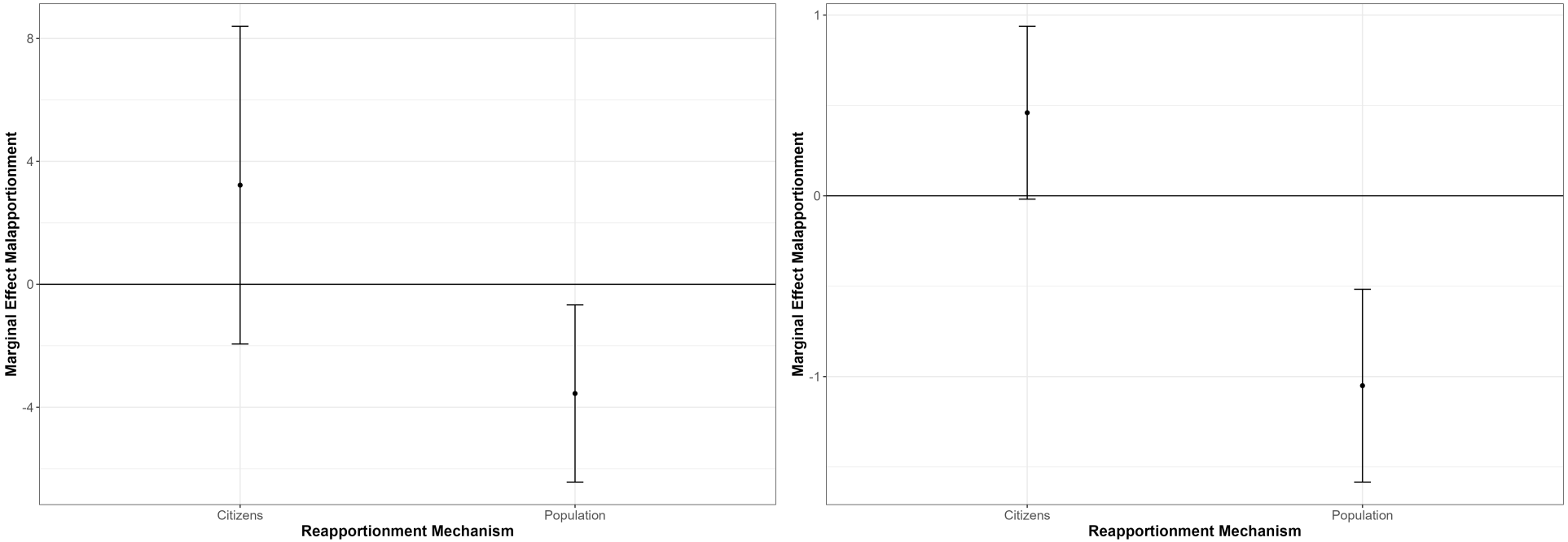
Cluster-Robust Standard Errors by code. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{dagger}p < 0.1$

Table 4: Non-Citizens, Malapportionment, and Voter Ideology

on citizens (although not significant on the 5% level). The opposite is true for population-based reapportionment. Here, high scores on the relative representation index are linked to more support for left parties. Therefore, the results suggest that the reapportionment mechanism moderates the relationship between the relative representation index and the ideological leaning of regions, with left-leaning regions (and by implication left parties) being the primary beneficiaries of population-based apportionment.

The findings thus show that reapportionment mechanisms have distributional implications. However, are voters aware of these consequences and do they influence voters' preferences for different apportionment rules? To answer these questions, we turn to our analysis of the Swiss direct democratic vote on whether the population-based reapportionment mechanism ought to be replaced with a citizen-based version. As shown in the appendix, the distributional consequences of different apportionment rules were explicitly articulated in the run-up to the popular vote.

The results are displayed in Table 5. Models 1 and 2 show that the measures for party support and ideology are significant at the 0.1% level. An increase of vote shares of urban parties from 0 to 100% reduces the yes share by 20 percentage points. Similarly, a one-unit change on the ideology scale from a liberal to a more conservative position increases the yes share by 9 percentage points. In models 3 and 4, we show that the magnitude of these effects are reduced but remain highly significant when controlling for changes in representation, socioeconomic conditions, and spatial dependence. This finding suggests that voters take partisan implications into account even when deciding on different reapportionment



(a) Manifesto

(b) CHES

Figure 3: Malapportionment and Voter Ideology

mechanisms.

Models 3 and 4 show that the relative gain in representation has some explanatory power as well. More precisely, an increase in representation is linked to a higher yes share. However, is representation systematically linked to the ideological leaning of municipalities? In models 5 and 6, we interact party vote shares and ideology with changes in representation, respectively. In both models, the interaction term is significant at the 5% level.

In Figure 4, we plot the effect of representation on yes shares depending on party vote shares and ideology. To do so, we use representative values for party vote shares and ideology as the histograms on the right side show. In the left upper plot, we display the predicted yes shares for representation for municipalities with urban party vote shares of 0% and 100%. The plot shows that municipalities with no support for urban parties show higher yes shares if they gain from representation, whereas municipalities that support urban parties do not show an increase in yes shares even if they would benefit from stronger regional representation. The lower plot on the left side shows the same picture with the more precise estimates of ideological leanings.

What about the effect of ideological leanings on the support for the proposal? Figure 5 shows that a change in representation has only a weak impact on the relationship. The plots on the left side demonstrate that municipalities with higher support for urban parties or liberal leanings display lower yes shares than municipalities with lower support for urban parties or conservative leanings. However, gains in representation make only a difference for municipalities with rather conservative leanings. Overall, the results show that the ideological orientation of voters is a strong predictor of support for different reapportionment mechanisms. In contrast, changes in representation seem to be relevant only for a specific subset of voters.

Conclusion

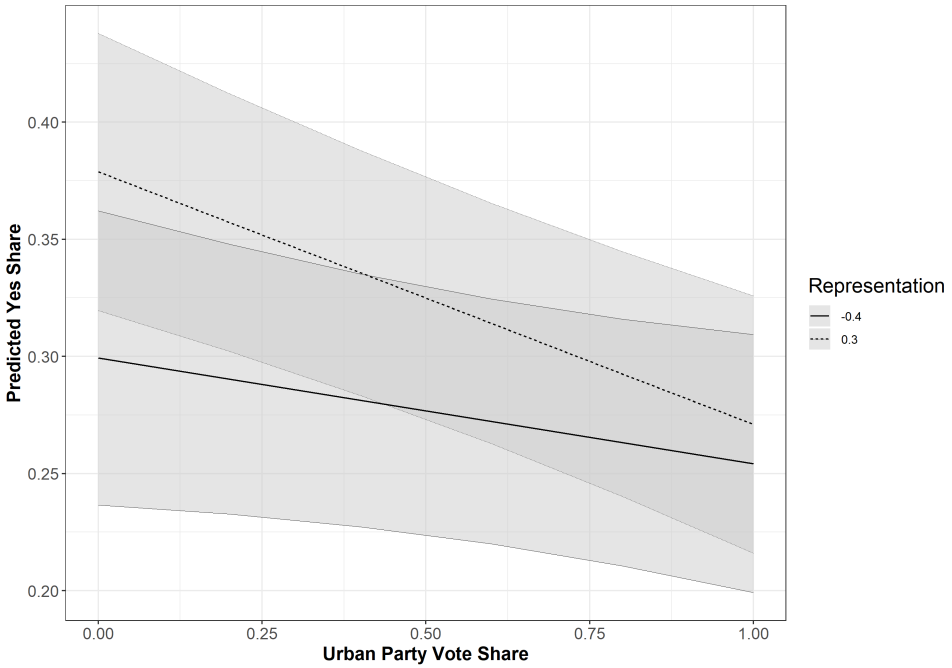
Electoral systems are "the means by which votes are translated into seats in the process of electing politicians into office" (Farrell, 2001, 4). Yet, electoral systems are never the same in two countries. Small differences between electoral systems can lead to substantial advantages for some political actors at the expense of others, making electoral systems an important manipulative instrument of politics (Sartori, 1968).

A prominent example are differences in reapportionment rules, which refers to the process by which representation is distributed among the constituencies of a legislative body. Malapportionment denotes systematic biases in democratic systems because some geographical entities benefit from a numerically better representation than others. The empirical literature on malapportionment has emphasized how it typically benefits rural areas and conservative parties. This rural and conservative bias has two main sources. First, apportionment rules might guarantee all geographical entities a minimum number of seats. Second, biases might result from the non-adaptation of districts despite uneven population growth. Given the general trend towards urbanization, both processes mainly benefit rural areas, which tend to favor conservative parties.

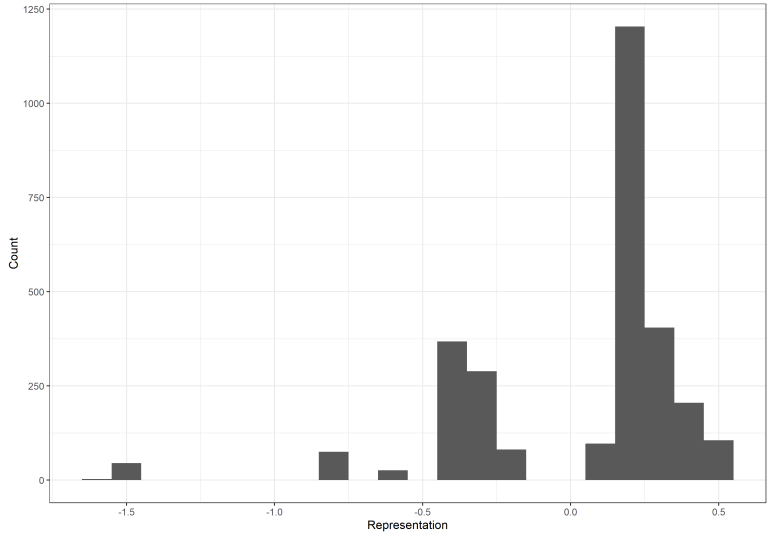
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Urban Party Vote Share	−0.20***		−0.08***		−0.08***	
	(0.02)		(0.02)		(0.02)	
Ideology Liberal - Conservative		0.09***		0.06***		0.07***
		(0.01)		(0.01)		(0.01)
Δ Representation District			0.05**	0.09***	0.11**	0.09***
			(0.01)	(0.02)	(0.04)	(0.02)
Urban Party * Δ Representation District					−0.09*	
					(0.04)	
Ideology * Δ Representation District						0.05**
						(0.02)
Spatial Lag			0.06	0.31	0.05	0.31
			(0.18)	(0.21)	(0.18)	(0.21)
Share Agriculture			0.11***	0.14***	0.11***	0.14***
			(0.02)	(0.02)	(0.02)	(0.02)
Share Foreigners			−0.42***	−0.10	−0.42***	−0.10
			(0.08)	(0.08)	(0.08)	(0.08)
ln Population Density			0.00	0.01*	0.00	0.01*
			(0.01)	(0.01)	(0.01)	(0.01)
Share Catholics			0.21***	0.13***	0.21***	0.13***
			(0.02)	(0.02)	(0.02)	(0.02)
Share German			0.02	0.03	0.02	0.03*
			(0.02)	(0.02)	(0.02)	(0.02)
AIC	−1281.46	−1291.14	−1436.89	−1327.76	−1434.68	−1328.00
BIC	−1258.83	−1269.16	−1374.72	−1267.37	−1366.86	−1262.13
Log Likelihood	644.73	649.57	729.45	674.88	729.34	676.00
Num. obs.	2117	1798	2105	1789	2105	1789
Num. groups: Canton	23	23	23	23	23	23
Var: Canton (Intercept)	0.03	0.03	0.01	0.01	0.01	0.01
Var: Residual	0.03	0.03	0.03	0.03	0.03	0.03

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

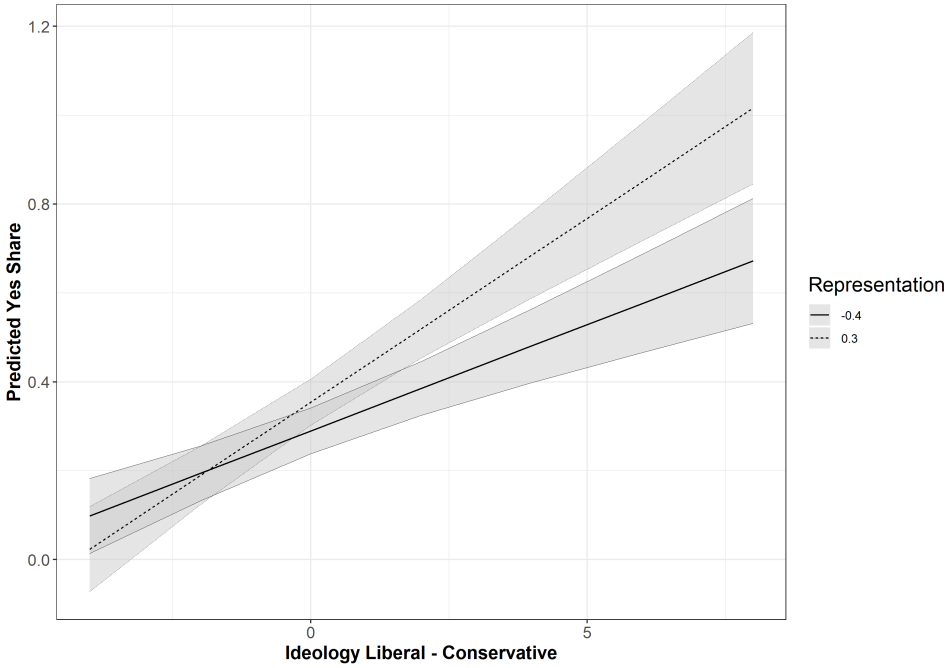
Table 5: Vote Urban Overrepresentation 1903: Interaction



(a) Predicted Yes Share Urban Party Vote

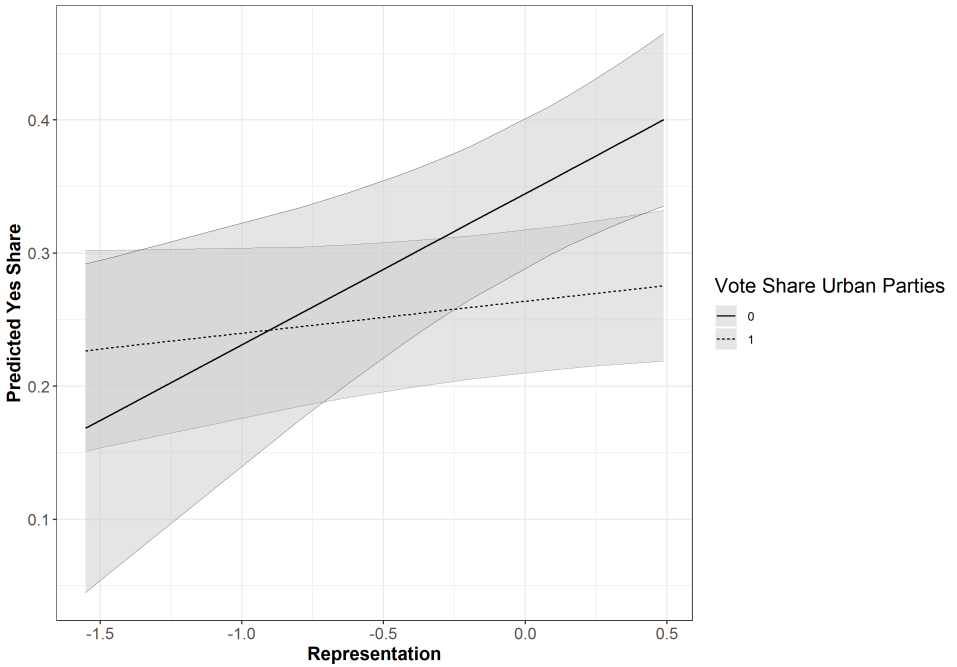


(b) Histogram Δ Representation

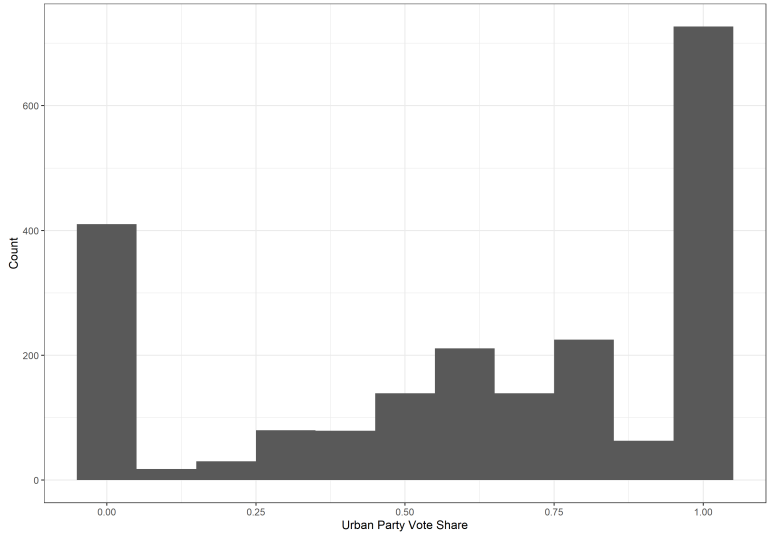


(c) Predicted Yes Share Ideology

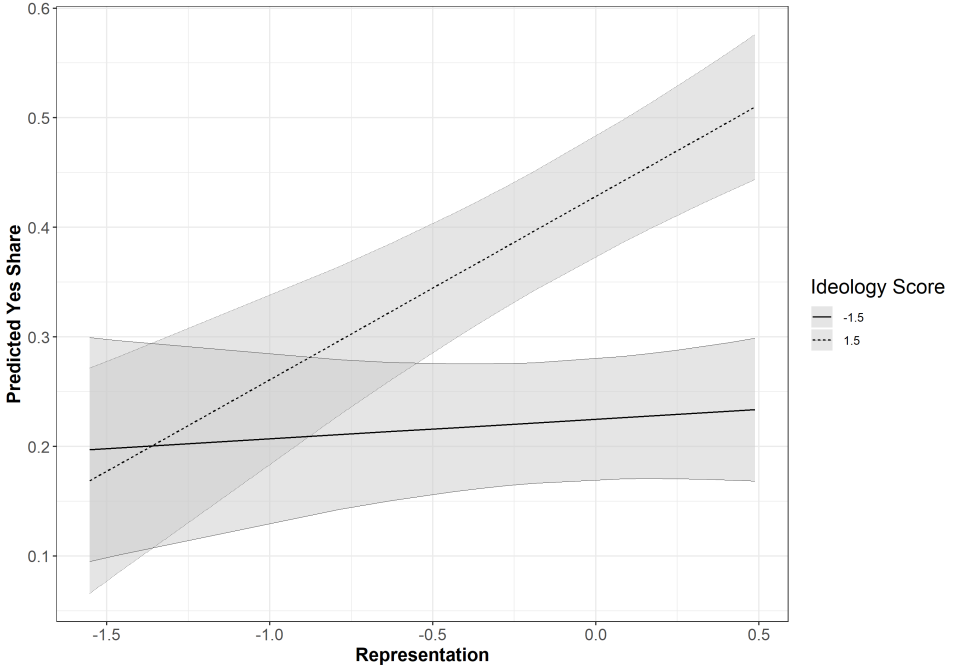
Figure 4: Effect of Party Support and Ideology on Yes Share, Conditional on Δ Representation



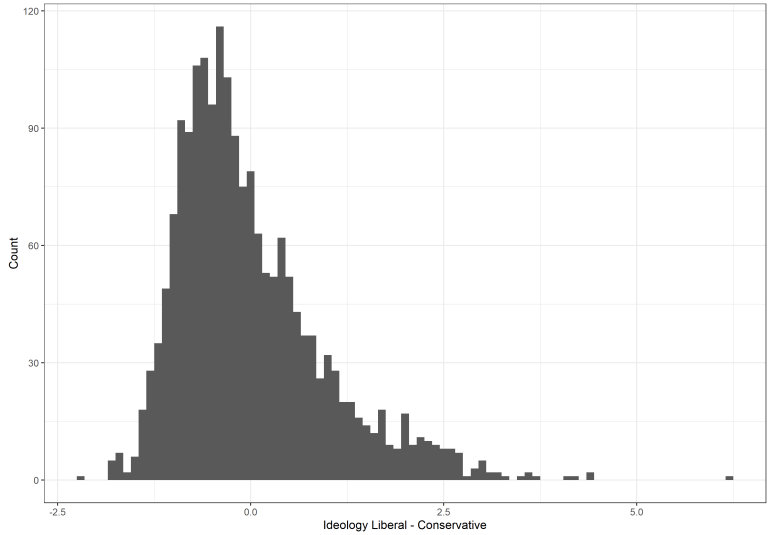
(a) Predicted Yes Share Δ Representation



(b) Histogram Urban Party Vote Share



(c) Predicted Yes Share Δ Representation



(d) Histogram Ideology Liberal - Conservative

Figure 5: Effect of Δ Representation on Yes Share, Conditional on Party Support and Ideology

This paper has highlighted a third, hitherto overlooked factor influencing the reapportionment process, which has the potential to benefit urban regions and left parties. According to Samuels and Snyder (2001, 654), in a malapportioned electoral system, "the votes of some citizens weigh more than the votes of other citizens." However, a large number of countries does not consider the number of citizens when apportioning seats to districts. Rather, they apportion seats based on the total population. This has implications for representation because non-citizen residents are not distributed equally across a territory. Instead, non-citizen residents, mostly foreign-born residents, concentrate in urban areas. In the empirical analysis, we have demonstrated that by apportioning seats based on total population rather than voters, electoral systems weigh the votes of some citizens – those living in urban areas – more than the votes of other citizens – those living in rural areas. And given that urban areas are more left leaning, such systems tend benefit left parties, whereas citizen-based apportionment tends to benefit conservative parties. For reasons of data availability, the empirical analysis has relied on data from eleven advanced democracies. However, we would expect similar patterns to apply to all democracies in the world.

We hasten to add that we do not aim to engage in a normative debate as to whether non-citizen residents should or should not be considered in apportionment. Undoubtedly, there are good arguments for the political representation of non-citizen residents and thus their consideration in apportionment, although it is far from clear whether the political preferences of citizens and non-citizens residing in the same electoral districts actually converge. Our goal is simply to demonstrate that the definition of the reference group in reapportionment ("who counts?") matters systematically, and that the political (rather than geographical) consequences of changes in the reapportionment formula are the subject of political controversy. Moreover, against the benchmark of the most common definitions of malapportionment which emphasize citizens' votes, population-based apportionment tends to benefit urban areas and the political left. In the light of the existing empirical literature on malapportionment, which argues that malapportionment primarily benefits rural areas and conservative parties, this is an important corrective.

In this paper, we have identified general patterns, because non-citizen residents tend to be concentrated in urban districts. However, the extent to which they do so differs between countries. The possibly most prominent exception to the pattern we observe in this paper is the "three-fifths compromise" in the USA, which defined how slaves were to be counted for the purpose of reapportioning seats for the House of Representatives. In this case, by counting non-citizens, rural areas were the main beneficiaries of the reapportionment rule. Similarly, within the Southern states, population-based reapportionment benefited rural districts with a larger population of slaves (Chacón & Jensen, 2020).

Moreover, countries differ regarding the extent to which the three factors influencing reapportionment apply to them. Consider the Swiss case mentioned above. Switzerland relies on population-based apportionment and reapportions districts before each election. However, the Swiss constitution also guarantees at least one seat in the lower chamber to every electoral district -– independent of the district's population size. Focusing only on population-based apportionment, the comparatively urban district "Genève" is the biggest beneficiary with a non-citizen population of 40.5%, which gives "Genève" a seat per 25.251 citizens. However, thanks to its guaranteed seat, the very small and comparatively rural district "Appenzell Innerrhoden" is an even bigger beneficiary of the reapportionment rules, with one seat for its 14.476 citizens. Yet, the effect of population-based apportionment

already trumps the effect of guaranteed minimum representation in case of Switzerland's second-smallest district, "Uri", with only one seat in the lower chamber for its 32.151 citizens. Ultimately, which one of the three factors influencing reapportionment has the most influence on the political representation of urban and rural interests, the strength of left and conservative parties, and ultimately public policies is difficult to tell and differs from case to case. What is clear, however, is that all three factors matter systematically, and that malapportionment may also benefit urban regions and left parties.

The politicization of the reapportionment mechanism is likely to reflect these complex distributional consequences. Conservative parties are likely to mobilize against population-based reapportionment and in favor of citizen-based apportionment, as the US example mentioned at the beginning of this paper shows. However, conservative parties might be more reluctant to do so when they simultaneously benefit from non-reapportionment despite large population movements or generous minimum representation rules, although in some federal states such as the USA or Switzerland, the latter are difficult to change due to the possible implications of such rule changes for the federal structure of the state. Instead, conservative parties might try to neutralize left parties' advantage in case of population-based reapportionment by supporting restrictive immigration policies or preventing immigrants from obtaining permanent residency. In any case, as immigration flows continue to increase, debates about reapportionment rules are here to stay.

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Appendix

The 1903 Vote on Reapportionment in Switzerland

In October 1903, Swiss citizens were asked to vote on the reference group for the apportionment of seats to electoral districts. Concerned about the rapid growth of the foreign-born population in Switzerland as well as their concentration in urban areas, several prominent politicians from more rural areas launched a popular initiative to change the reference group for seat reapportionment from the total population to citizens only.[9] From 1860 to 1900, the migrant population had grown from 4,6% to 11,6% of the Swiss population (Linder et al., 2010, 103). Moreover, this growth was very uneven. At the turn of the century, roughly 80% of the non-citizen population resided in only nine cantons – especially cantons with large industrial centers. Cantons with large migrant populations were Genève (40,4%), Basel-Stadt (37,6%), Ticino (28,2%), Thurgau (19%), and St. Gallen (17,6%). The concentration of the migrant population in cities was even more pronounced. Migrants made up 50,5% of the population in Lugano (Ticino), 46,1% in Arbon (Thurgau), 42% in Genève (Genève), 41,5% in Rorschach (St. Gallen), 37,8% in Basel (Basel-Stadt), 33,9% in Schaffhausen (Schaffhausen), and 33,8% in Zürich (Zürich) (Vuilleumier, 2015).

Proponents of the proposal argued that the growth and concentration of the migrant population in a small number of disproportionately urban cantons would lead to a growing underrepresentation of rural areas. Opponents of the proposal, in turn, argued that urban areas, as the main economic centers, needed a strong representation and accused the proponents of citizen-based reapportionment of xenophobia (Kölz, 2004, 689-692; Linder et al., 2010, 103-104).

However, the 1903 vote was about more than just the representation of urban and rural areas. If the reference group had changed, cantons with large migrant populations would have lost seats in the federal parliament because one seat was awarded per 20.000 inhabitants. Not counting the migrant population would have cost the canton Zürich four seats, Basel-Stadt and Genève each three seats, St. Gallen, Ticino, and Vaud each two seats, and Bern, Graubünden, Thurgau, and Valais each one seat (Kölz, 2004, 690). Importantly, most of these cantons were not only disproportionately urban, they were also less conservative than the remaining cantons (Gruner, 1978). Moreover, even within these cantons, seat losses would have primarily come at the expense of the more urban electoral districts rather than at the expense of the more conservative rural districts.[10]

At the beginning of the reform debate, the proponents had emphasized the conflict between rural and urban regions. However, over time, the role of the partisan consequences of changes in the apportionment rules grew in importance. The proposal had been origi-

[9] In 1891, Switzerland had introduced the instrument of popular initiatives, which require the support of at least 50.000 citizens and allow suggesting constitutional articles that need to be implemented by law if approved in a popular vote (parliament cannot adapt the proposals).

[10] Before 1918, Switzerland relied on a two-round MR electoral system with a plurality run-off in the second round. Mid-sized and large cantons were divided in multiple (multi-member) electoral districts, but the Swiss constitution did not allow the creation of electoral districts across cantonal borders. For this reason, cantons with multiple electoral districts varied with regard to the degree of urbanization of their districts. In 1918, Switzerland adopted a PR electoral system with cantons as the electoral districts (Emmenegger & Walter, 2021).

nally launched by a cross-partisan committee led by the two farmers Candid Hochstrasser (Catholic Conservatives, Luzern) and Eugène Fonjallaz (Radical Party, Vaud). Both expressed concerns about the overrepresentation of cities. However, as the political debate in the run-up to the vote gained in intensity, the Radical Fonjallaz stopped publicly supporting the proposal. This behavior is consistent with the growing importance of arguments about partisan representation in the vote on the reference group. In fact, over time, clear partisan interests that go beyond the mere representation of rural and urban interests came to the forefront. Parties with strongholds in the more rural areas were consistently in favor of the proposal (e.g., the Catholic Conservatives and the Protestant Conservatives), whereas parties with a strong presence in urban areas, such as the Liberals, Radicals, and emerging Social Democrats consistently opposed it (Linder et al., 2010, 103-104). The proposal was also opposed by the Federal Government, which emphasized the importance of representing non-citizens in politics (Kölz, 2004, 691). At the same time, however, the Federal Government, consisting mostly of Liberals and Radicals, made no argument in favor of enfranchising them (or women, for that matter).

Possibly most tellingly, parties and voters treated the answer to the question of "who counts?" differently at national and cantonal level. Consider the example of Zürich, Switzerland's largest canton in terms of population. In a 1894 direct democratic vote at the cantonal level, voters in Zürich were asked whether they favored reapportionment of seats based on citizens rather than population for cantonal elections. 56% of the voting population responded in the affirmative (Weibel, 2000, 90-92). Incidentally, the 1894 popular initiative in Zürich had been launched by Liberals and Radicals who were concerned about the growing electoral strength of the Social Democrats in urban centers. Nine years later, in 1903, only 14% of the voters in Zürich supported the same reapportionment rule for national elections (Linder et al., 2010, 103-104). This time, the Liberals and Radicals joined the Social Democrats in opposition to the proposed change, accusing the Conservatives of xenophobia.

What explains this difference? In 1894, voters from comparatively rural areas in Zürich were concerned about the representation of Liberals and Radicals in the cantonal parliament, which was challenged by the strong political position of the Social Democrats in the urban centers. Hence, they favored a change in the reapportionment formula to strengthen the countryside. In 1903, many of the same voters understood that this time, a change in the apportionment formula would strengthen the Conservatives at the expense of the Liberals and Radicals. Hence, although a rule change would have improved the political representation of rural areas, this time, they opposed the reform to protect the strong political position of the Liberals and Radicals in the federal parliament.

In any case, on October 25, 1903, a majority of the voting population rejected the popular initiative. We argue that the 1903 popular initiative is instructive because it demonstrates that the question of "who counts?" can be politicized. Moreover, the 1903 vote allows us to compare the relative roles of geography and political ideology for support of different reapportionment rules. At first sight, we should expect voters whose representation would have improved by a change in the reapportionment formula, i.e. from population to citizens, to be more likely to support the popular initiative. However, we should also expect political considerations to influence voting behavior. More precisely, we expect voters who are ideologically closer to urban areas – independent of the net change in representation as a result of the reform – to be less supportive of the popular initiative. For these (ru-

ral) voters, the improvement in their political representation as a result of the reform of the apportionment rules would have come at the cost of parallel improvements in the political representation of their political opponents. We expect voters to take such political implications into account when casting their vote.

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Additional Descriptive Statistics and Robustness Tests

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Urban Party Vote Share	−0.20***		−0.08***		−0.08***	
	(0.02)		(0.02)		(0.02)	
Ideology Liberal - Conservative		0.09***		0.06***		0.06***
		(0.01)		(0.01)		(0.01)
Δ Representation Canton			0.06	0.08*	−0.01	0.08*
			(0.04)	(0.04)	(0.04)	(0.04)
Urban Party * Δ Representation Canton					0.09***	
					(0.02)	
Ideology * Δ Representation Canton						−0.01
						(0.01)
Spatial Lag			0.09	0.46*	0.08	0.47*
			(0.18)	(0.21)	(0.18)	(0.21)
Share Agriculture			0.11***	0.14***	0.11***	0.14***
			(0.02)	(0.02)	(0.02)	(0.02)
Share Foreigners			−0.42***	−0.11	−0.40***	−0.10
			(0.08)	(0.08)	(0.08)	(0.08)
ln Population Density			0.00	0.01	0.00	0.01
			(0.01)	(0.01)	(0.01)	(0.01)
Share Catholics			0.20***	0.11***	0.22***	0.12***
			(0.02)	(0.02)	(0.02)	(0.02)
Share German			0.02	0.03	0.01	0.03
			(0.02)	(0.02)	(0.02)	(0.02)
AIC	−1281.46	−1291.14	−1434.18	−1306.95	−1444.20	−1298.14
BIC	−1258.83	−1269.16	−1371.99	−1246.56	−1376.36	−1232.27
Log Likelihood	644.73	649.57	728.09	664.47	734.10	661.07
Num. obs.	2117	1798	2108	1789	2108	1789
Num. groups: Canton	23	23	23	23	23	23
Var: Canton (Intercept)	0.03	0.03	0.01	0.01	0.01	0.01
Var: Residual	0.03	0.03	0.03	0.03	0.03	0.03

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table A6: Vote Urban Overrepresentation 1903 (Representation Cantonal Level)